Claim Amendments

1. (Original) A method of modifying an antibiotic-producing strain of *Streptomyces coelicolor* or *Streptomyces lividans* to increase antibiotic production in said strain, the method comprising functionally deleting in said strain the *scbA* gene.

2. (Original) A method of producing an antibiotic, the method comprising providing a modified *Streptomyces* strain of claim 1, and culturing said strain under conditions suitable for production of antibiotic.

3. (Currently Amended) The method of claim 2, further comprising the step of purifying the antibiotic from the culture medium.

4. (Original) The method of claim 3, further comprising the step of formulating the antibiotic as a pharmaceutical.

5. (Original) A method of modifying an antibiotic-producing strain of a *Streptomyces coelicolor* to alter the timing of antibiotic production in said strain, the method comprising functionally deleting in said strain the *scbR* gene.

6. (Original) A method of producing an antibiotic, the method comprising providing a modified *Streptomyces* strain of claim 5, and culturing said strain under conditions suitable for production of antibiotic.

7. (Currently Amended) The method of claim 6, further comprising the step of purifying the antibiotic from the culture medium.

8. (Original) The method of claim 7, further comprising the

step of formulating the antibiotic as a pharmaceutical.

9. (Original) A modified strain of *Streptomyces coelicolor* or *Streptomyces lividans*, the modified strain having a functional deletion of the *scbA* gene, whereby production of at least one antibiotic in said modified strain is increased compared to a wild-type strain of *Streptomyces coelicolor* or *Streptomyces lividans*, respectively.

10. (Original) A modified strain of *Streptomyces coelicolor*, the modified strain having a functional deletion of the *scbR* gene, whereby the timing of production of at least one antibiotic in said modified strain is altered compared to a wild-type strain of *Streptomyces coelicolor*.

11. (Original) The method of claim 1, wherein the strain is *S. coelicolor* A3(2) or *S. lividans* 66.

12. (Original) The method of claim 5, wherein the strain is *S. coelicolor* A3(2).

13. (Original) The strain of claim 9, which is a modified strain of *S. coelicolor* A3(2) or *S. lividans* 66.

14. (Original) The strain of claim 10, which is a modified strain of *S. coelicolor* A3(2).

15. (Original) A method for identifying *Streptomyces* species in which antibiotic production is increased by functionally deleting the *scbA* gene of *S. coelicolor* or a homologue thereof, the method comprising functionally deleting in an antibiotic-producing strain of a *Streptomyces* species the *scbA* gene of *S. coelicolor* or a homologue thereof, culturing said

strain under conditions suitable for the production of antibiotic, and determining whether antibiotic production in said strain is increased.

16. (Original) A method for producing an antibiotic, the method comprising, following identification of a *Streptomyces* species according to claim 15, providing a strain of said species having a functional deletion of said *scbA* gene of *S. coelicolor* or homologue thereof, and culturing said strain under conditions suitable for antibiotic production.

17. (Currently Amended) The method of claim 16, further comprising the step of purifying the antibiotic from the culture medium.

18. (Original) The method of claim 17, further comprising the step of formulating the antibiotic as a pharmaceutical.

19. (Original) The method of claim 15, wherein the *scbA* gene or homologue thereof has a nucleotide sequence which:

(a) is the complement of nucleotides 2914 to 1970 of EMBL AJ007731;

(b) is the complement of nucleotides 2142-1199 of Fig. 14;

(c) encodes a polypeptide having at least about 35% sequence identity with the amino acid sequence of Fig. 10; and/or

(d) is capable of specific hybridisation with the amplification product obtained using the primers:

oligo1 (5'-GACCACGT(CG)CC(CG)GGCATG) and

oligo2 (5'-GTCCTG(CG)TGGCC(CG)GT(CG)AC(CG)CG(CG)AC)

to amplify total DNA of said species or strain.

20. (Original) The method of claim 19, wherein the level of sequence identity is at least about 50%.

21. (Original) The method of claim 20, wherein the level of sequence identity is at least about 65%.

22. (Original) The method of claim 21, wherein the level of sequence identity is at least about 80%.

23. (Original) The method of claim 22, wherein the level of sequence identity is at least about 95%.

24. (Original) A method for identifying *Streptomyces* species in which the timing of antibiotic production is altered by functionally deleting the *scbR* gene of *S. coelicolor* or a homologue thereof, the method comprising functionally deleting in an antibiotic-producing strain of a *Streptomyces* species the *scbR* gene of *S. coelicolor* or a homologue thereof, culturing said strain under conditions suitable for the production of antibiotic, and determining whether the timing of antibiotic production in said strain is altered.

25. (Original) A method for producing an antibiotic, the method comprising, following identification of a *Streptomyces* species according to claim 24, providing a strain of said species having a functional deletion of said *scbR* gene of *S. coelicolor* or homologue thereof, and culturing said strain under conditions suitable for antibiotic production.

26. (Original) The method of claim 25, further comprising the step of purifying the antibiotic from the culture medium.

27. (Original) The method of claim 26, further comprising the

step of formulating the antibiotic as a pharmaceutical.

28. (Original) The method of claim 24, wherein the *scbR* gene or homologue thereof:

(a) has a nucleotide sequence which is nucleotides 3032 to 3679 of EMBL AJ007731;

(b) has a nucleotide sequence which is nucleotides 2261-2908 of Fig. 14;

(c) has a nucleotide sequence which encodes a polypeptide having at least about 35% sequence identity with the amino acid sequence of Fig. 9; and/or

(d) is adjacent to and divergent from a gene which is capable of specific hybridisation with the amplification product obtained using the primers:

oligo1 (5'-GACCACGT(CG)CC(CG)GGCATG) and

oligo2 (5'-GTCCTG(CG)TGGCC(CG)GT(CG)AC(CG)CG(CG)AC)

to amplify total DNA of said species or strain.

29. (Original) The method of claim 28, wherein the level of sequence identity is at least about 50%.

30. (Original) The method of claim 29, wherein the level of sequence identity is at least about 65%.

31. (Original) The method of claim 30, wherein the level of sequence identity is at least about 80%.

32. (Original) The method of claim 31, wherein the level of sequence identity is at least about 95%.

RESPONSE TO RESTRICTION REQUIREMENT

The amendments to the claims correct minor typographical errors. Furthermore, applicants note that the renumbering of the claims set forth by the Examiner is correct.

The Official Action dated October 03, 2003, in the above-identified application sets forth a Requirement for Restriction under 35 U.S.C. §121. The Examiner has determined that the claims of this application are drawn to four inventions which are alleged to be patentably distinct, as follows:

I. Claims 1, 9, 11, 13, 15, and 19-23, drawn to methods of modifying or identifying *Streptomyces* host cells to increase antibiotic production by deleting the *scbA* gene, and drawn to the cells made;

II. Claims 2-4 and 16-18, drawn to methods of making antibiotics using a *Streptomyces* host cell with a deleted *scbA* gene;

III. Claims 5, 10, 12, 14, 24, and 28-32 drawn to modifying or identifying *Streptomyces* host cells to increase antibiotic production by deleting the *scbR* gene and drawn to cells made; and

IV. Claims 6-8 and 25-27, drawn to methods of making antibiotics using a *Streptomyces* host cell with a deleted *scbR* gene.

It is the Examiner's position that the products of Groups I and II are related as product and process of use, and that the products of Groups I and III; I and IV; II and III; and II

and IV are drawn to structurally different genes, and therefore are distinct.

Election

In response to the above-mentioned requirement, Applicant hereby elects, without traverse, Group I, Claims 1, 9, 11, 13, 15, and 19-23, drawn to methods of modifying or identifying *Streptomyces* host cells to increase antibiotic production by deleting the *scbA* gene, and drawn to the cells made.

Applicants request that should the product of Group I be found allowable, that the process of Group II be rejoined, and fully examined, as suggested by the Examiner at page 6 of the official action.

Conclusion

The present election of the claims of Group I is without prejudice to Applicant's right to file a continuing application, as provided under 35 U.S.C. §121, on the subject matter of any claims ultimately held withdrawn from consideration in the application.

Early and favorable action on the merits of this application is respectfully requested.

Respectfully Submitted,
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